

Claims

What is claimed is:

1. A printing apparatus comprising:
a drum having a peripheral surface, the peripheral surface having at least one passageway therein; and
a screen placed over the peripheral surface of the drum, the screen having apertures therein that are smaller than the at least one passageway of the peripheral surface of the drum.
2. The printing apparatus of claim 1 further comprising a heat source for heating the peripheral surface of the drum and the screen.
3. The printing apparatus of claim 2 wherein at least a portion of the heat source is inside the drum.
4. The printing apparatus of claim 1 further comprising a vacuum source, the vacuum source in fluid communication with the at least one passageway on the peripheral surface of the drum.
5. The printing apparatus of claim 4 wherein at least a portion of the vacuum source is inside the drum.
6. The printing apparatus of claim 1 wherein the at least one passageway include channels located on the peripheral surface of the drum.
7. The printing apparatus of claim 1 further comprising a heat source for heating the peripheral surface of the drum and the screen, the screen covering the peripheral surface of the drum and passing over the at least one passageway.

8. The printing apparatus of claim 7 wherein the screen material has a coefficient of thermal expansion within the range of 1.0 to 30.0 micrometers/meter/degree Centigrade.
9. The printing apparatus of claim 7 wherein the screen and the peripheral surface of the drum are made of materials having a same coefficient of thermal expansion.
10. The printing apparatus of claim 4 further comprising a source of pressurized gas in fluid communication with the at least one passageway on the peripheral surface of the drum.
11. The printing apparatus of claim 10 further comprising a media ejector in fluid communication with the source of pressurized gas, the media ejector and the source of pressurized gas adapted to blow a gas into the at least one passageway.
12. The printing apparatus of claim 11 wherein the media ejector includes an internal cavity for directing a pressurized gas from the pressure source of gas through the screen and into the at least one passageway.
13. The printing apparatus of claim 11 wherein the media ejector has an end positioned near the at least one passageway on the drum.
14. A method for printing on media comprising:
 - placing a screen over a drum;
 - holding a print medium onto the screen with a vacuum; and
 - depositing ink on the print medium.
15. The method of claim 14 further comprising heating the drum and the screen.

16. The method of claim 14 further comprising removing the media from the drum.
17. The method of claim 14 further comprising pressurizing a channel on the surface of the print drum to remove the media from the print drum.
18. The method of claim 17 wherein the pressurizing the channel includes directing a stream of gas into the channel and through the screen.
19. The method of claim 17 wherein the pressurizing the media ejection channel includes directing a stream of gas into the channel and through the screen over the print drum, the stream of gas directed toward the area of the print drum near a leading edge of the media.
20. A printing apparatus comprising:
 - a drum having passageways therein;
 - a screen having apertures therein covering the drum; and
 - means for holding media onto the screen.
21. The printing apparatus of claim 20 wherein means for holding media on to the screen includes producing a vacuum in the passageways of the drum.
22. The printing apparatus of claim 20 further comprising means for removing media from the print drum.
23. The printing apparatus of claim 22 wherein means for removing media from the print drum includes at least one media pick-off for pressurizing a passageway on the print drum.
24. The printing apparatus of claim 20 further comprises means for heating the print drum and screen.

25. The printing apparatus of claim 20 wherein means for holding media onto the print drum includes a source of low pressure in fluid communication with the passageways in the print drum and wherein means for removing media from the print drum includes means for disconnecting the source of low pressure from the plurality of openings in the print drum.
26. A printing apparatus comprising:
a media path having
a print drum having an outside surface having at least one passageway;
a screen covering the print drum and the at least one passageway;
a conduit for blowing a gas through the screen and into the at least one passageway, the screen having apertures therein that allow the gas to be transmitted through the screen to the at least one passageway.
27. The printing apparatus of claim 26 wherein media is temporarily held onto the screen as the media is moved through a print zone.
28. The printing apparatus of claim 26, wherein media is removed from the screen when the gas from the conduit is blown into the at least one passageway.
29. The printing apparatus of claim 26 further comprising a housing, the paper path and the source of ink located substantially within the housing.
30. The printing apparatus of claim 26 further comprising a heat source for heating the print drum.
31. The printing apparatus of claim 30 further comprising means for lessening a print defect due to uneven heating of the media.

32. The printing apparatus wherein the screen spans the passageways in the drum and has a sufficient thermal mass to evenly distribute heat to the media.
33. A printing apparatus comprising:
a print drum having a peripheral surface, the peripheral surface having a channel formed therein; and
a conduit positioned near the peripheral surface of the print drum to direct a stream of gas at the channel.
34. The printing apparatus of claim 33 wherein the stream of gas is directed along the channel of the print drum.